

WHAT IS CLAIMED IS:

1. A radio terminal device for use in a radio system for carrying out data transfer after establishing a logical
5 connection between radio terminals prior to data transfer between radio terminals. the radio terminal device comprising:

a logical channel set up unit configured to set up at least one first logical channel for transfer of data
10 packets containing at least one AV stream and acquire information regarding at least one second logical channel set up for the transfer of the data packets at a correspondent radio terminal. and to set up at least one third logical channel for transfer of control packets
15 containing control information regarding transfer of the data packets and acquire information regarding at least one fourth logical channel set up for the transfer of the control packets at the correspondent radio terminal:

a memory unit configured to store a correspondence
20 information including a correspondence between the first logical channel and the second logical channel for the AV stream. and a correspondence between the third logical channel and the fourth logical channel for the control information: and

25 a packet transmission/reception unit configured to transmit/receive the data packets and the control packets to/from the correspondent radio terminal by using the correspondence information.

30 2. The radio terminal device of claim 1, wherein the data packets contain a single AV stream or one AV stream in which a plurality of single streams are multiplexed. the logical channel set up unit sets up one first logical channel with respect to the single AV stream or the one AV
35 stream and acquires information regarding one second

logical channel set up with respect to the single AV stream
or the one AV stream, and sets up one third logical channel
with respect to the single AV stream or the one AV stream
and acquires information regarding one fourth logical
5 channel set up with respect to the single AV stream or the
one AV stream.

3. The radio terminal device of claim 1, wherein the data
packets contain a plurality of AV streams belonging to one
10 AV application, and the logical channel set up unit sets up
one first logical channel with respect to each one of the
plurality of AV streams separately and acquires information
regarding one second logical channel set up with respect to
each one of the plurality of AV streams separately.

15 4. The radio terminal device of claim 3, wherein the
logical channel set up unit sets up one third logical
channel with respect to the plurality of AV streams and
acquires information regarding one fourth logical channel
20 set up with respect to the plurality of AV streams.

5. The radio terminal device of claim 3, wherein the
logical channel set up unit sets up one third logical
channel with respect to each one of the plurality of AV
25 streams separately and acquires information regarding one
fourth logical channel set up with respect to each one of
the plurality of AV streams separately.

6. The radio terminal device of claim 1, wherein the
30 packet transmission/reception unit transmits the data
packets by using the second logical channel obtained by
referring to the correspondence information.

7. The radio terminal device of claim 1, wherein the
35 packet transmission/reception unit transmits the control

packets by using the fourth logical channel obtained by referring to the correspondence information.

8. The radio terminal device of claim 1, wherein the
5 packet transmission/reception unit receives the control packets from the correspondent radio terminal by using the third logical channel.

9. The radio terminal device of claim 1, wherein the
10 logical channel set up unit transmits a first connection request containing a channel identifier for identifying the first logical channel set up at the radio terminal device to the correspondent radio terminal, and then receives a first connection response containing a channel identifier
15 for identifying the second logical channel set up at the correspondent radio terminal in response to the first connection request, and

the logical channel set up unit transmits a second connection request containing a channel identifier for
20 identifying the third logical channel set up at the radio terminal device to the correspondent radio terminal, and then receives a second connection response containing a channel identifier for identifying the fourth logical channel set up at the correspondent radio terminal in
25 response to the second connection request.

10. The radio terminal device of claim 9, wherein the logical channel set up unit acquires the information regarding the second logical channel from the first
30 connection response and the information regarding the fourth logical channel from the second connection response, and registers the correspondence information into the memory unit according to the information regarding the second logical channel and the information regarding the
35 fourth logical channel as acquired.

11. The radio terminal device of claim 1, wherein the logical channel set up unit sets up the first logical channel and the third logical channel collectively, and then transmits a connection request containing information for specifying a group of channel identifiers for identifying the first logical channel and the third logical channel set up at the radio terminal device to the correspondent radio terminal.
12. The radio terminal device of claim 11, wherein the logical channel set up unit receives a connection response containing information for specifying a group of channel identifiers for identifying the second logical channel and the fourth logical channel set up at the correspondent radio terminal in response to the connection request.
13. The radio terminal device of claim 12, wherein the logical channel set up unit acquires the information regarding the second logical channel and the information regarding the fourth logical channel from the information for specifying the group of identifiers as obtained in the connection response, and registers the correspondence information into the memory unit according to the information regarding the second logical channel and the information regarding the fourth logical channel as acquired.
14. The radio terminal device of claim 11, wherein the information for specifying the group of identifiers indicates a prescribed parameter value and a group of functions for generating a prescribed number of channel identifiers from the prescribed parameter value.
15. The radio terminal device of claim 14, wherein the

group of functions generates the prescribed number of channel identifiers in forms of consecutive channel numbers.

5 16. The radio terminal device of claim 1. wherein the logical channel set up unit notifies information for specifying a group of channel identifiers for identifying the first logical channel and the third logical channel to the correspondent radio terminal and then sets up the first
10 logical channel and the third logical channel collectively.

17. The radio terminal device of claim 1. further comprising a notification unit configured to notify the correspondence information stored in the memory unit to the
15 correspondent radio terminal.

18. The radio terminal device of claim 1. wherein the logical channel set up unit receives a first connection request containing a channel identifier for identifying the
20 second logical channel set up at the correspondent radio terminal from the correspondent radio terminal, and then transmits a first connection response containing a channel identifier for identifying the first logical channel set up at the radio terminal device to the correspondent radio
25 terminal in response to the first connection request. and the logical channel set up unit receives a second connection request containing a channel identifier for identifying the fourth logical channel set up at the correspondent radio terminal from the correspondent radio
30 terminal, and then transmits a second connection response containing a channel identifier for identifying the third logical channel set up at the radio terminal device to the correspondent radio terminal in response to the second connection request.

35

19. The radio terminal device of claim 18, wherein the logical channel set up unit acquires the information regarding the second logical channel from the first connection request and the information regarding the fourth logical channel from the second connection request, and registers the correspondence information into the memory unit according to the information regarding the second logical channel and the information regarding the fourth logical channel as acquired.

10

20. The radio terminal device of claim 1, wherein the logical channel set up unit receives a notification of information for specifying a group of channel identifiers for identifying the first logical channel and the third logical channel from the correspondent radio terminal and then sets up the second logical channel and the fourth logical channel collectively.

21. The radio terminal device of claim 1, further comprising a notification reception unit configured to receive a notification of the correspondence information obtained at the correspondent radio terminal from the correspondent radio terminal and to register the correspondence information into the memory unit according to the notification.

22. The radio terminal device of claim 1, wherein the radio system is Bluetooth and the logical channel set up unit sets up and acquires information on logical channels which are LSCAP channels.

23. The radio terminal device of claim 1, wherein the AV stream is given by data according to an RTP protocol and the control information is given by data according to an RTCP protocol.

24. A data transfer method in a radio system for carrying out data transfer after establishing a logical connection between radio terminals prior to data transfer between

5 radio terminals. the method comprising the steps of:

setting up at least one first logical channel for transfer of data packets containing at least one AV stream and acquiring information regarding at least one second logical channel set up for the transfer of the data packets
10 at a correspondent radio terminal. and setting up at least one third logical channel for transfer of control packets containing control information regarding transfer of the data packets and acquiring information regarding at least one fourth logical channel set up for the transfer of the
15 control packets at the correspondent radio terminal:

storing a correspondence information including a correspondence between the first logical channel and the second logical channel for the AV stream. and a
20 correspondence between the third logical channel and the fourth logical channel for the control information: and

transmitting/receiving the data packets and the control packets to/from the correspondent radio terminal by using the correspondence information.

25 25. A computer usable medium having computer readable program codes embodied therein for causing a computer to function as a radio terminal device for use in a radio system for carrying out data transfer after establishing a logical connection between radio terminals prior to data
30 transfer between radio terminals. the computer readable program codes include:

a first computer readable program code for causing said computer to set up at least one first logical channel for transfer of data packets containing at least one AV
35 stream and acquire information regarding at least one

second logical channel set up for the transfer of the data packets at a correspondent radio terminal, and to set up at least one third logical channel for transfer of control packets containing control information regarding transfer of the data packets and acquire information regarding at least one fourth logical channel set up for the transfer of the control packets at the correspondent radio terminal:

5 a second computer readable program code for causing said computer to store a correspondence information including a correspondence between the first logical channel and the second logical channel for the AV stream, and a correspondence between the third logical channel and the fourth logical channel for the control information: and

10 a third computer readable program code for causing said computer to transmit/receive the data packets and the control packets to/from the correspondent radio terminal by using the correspondence information.

20

25

30

35